

REMARKS

Claims 1-16 are now pending in the application. Claims 1, 10, 12, 13, and 15 are amended. No claims have been added or cancelled. Support for the foregoing amendment can be found throughout the specification, drawings, and claims as originally filed. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 102 AND § 103

- A. Claims 1-2, 4-14 and 16 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Daugman (U.S. Pat. No.5,291,560; "Daugman").
- B. Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Daugman in view of Flom et al. (U.S. Pat. No. 4,641,349).
- C. Claim 15 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Daugman in view of Jones et al. (U.S. 2002/0107801). These rejections are respectfully traversed.

Applicant has amended claims 1, 10, 12, and 13 to more clearly point out the claimed subject matter.

Claim 1 recites "detecting presence or absence of roughness in the image." Applicant submits that Daugman fails to teach or suggest the above limitation. The Examiner appears to consider that computing Hamming distance between iris codes in Daugman corresponds to this feature. However, the small-scale variation between the reference code and the present code in Daugman differs from roughness in the image. The small-scale variation is not a characteristic in the image. The small-scale variation

depends on the reference code that is chosen and that is outside the currently received image.

Claim 1 recites “wherein the eye is judged to be a counterfeit eye that is a reproduction of a living eye when roughness is detected in the image.” The Examiner asserts that an eye of an imposter in Fig. 6 of Daugman corresponds to “a counterfeit eye.” Applicant submits that Daugman at best appears to show that the imposter is a living person, rather than a reproduction of a living eye.

Claim 3, incorporating the limitations of claim 2, calls for that the presence or absence of roughness is detected using “one of or a combination of two or more of moment, central moment, skewness and kurtosis of pixel values.”

The Examiner asserts that Flom teaches using the central moment as the predetermined feature. Applicant respectfully traverses the Examiner’s assertion. Flom at best appears to show, at Col. 13, lines 20-40, that the central moment is used for detecting isolated crypts or small pigment spots, rather than the claimed roughness. Further, because Daugman fails to disclose detecting roughness in an image, one of ordinary skill in the art would not be able to modify Daugman based on the teaching of Flom to arrive at claim 3.

Claim 10 recites “extracting a predetermined feature from the band-limited image data.” The Examiner asserts that generating the iris code shown in Fig. 4C of Daugman corresponds to this feature. Claim 10 further recites “recognizing whether the eye is a counterfeit eye that is a reproduction of a living eye, or a living eye based on data of the extracted feature.” The Examiner asserts that Daugman suggests analogous features.

Applicant respectfully traverses the Examiner's assertion for reasons presented above regarding claim 1.

In view of the foregoing, Applicant submits that independent claim 1 and its dependent claims 2-9, independent claim 14, and independent claim 10 and its dependent claim 11, define over the art cited by the Examiner.

Claims 12-13 and 15-16 each recite one or more features similar to one or more of the distinguishing features of claim 1 and/or 10. Thus, Claims 12-13 and 15-16 define over the art cited by the Examiner for one or more of the reasons set forth above regarding claim 1 and/or 10.

In addition, claim 10 recites "performing band limitation to the whole image data." The Examiner asserts that "quadrature bandpass filters" shown in Fig. 3 of Daugman correspond to "performing band limitation." Applicant respectfully traverses the Examiner's assertion. Daugman at best appears to show that quadrature bandpass filters are only used for the iris region of the eye image to generate the iris code, rather than for the whole image as recited in claim 10.

In view of the foregoing, Applicant submits that claim 10 defines over the art cited by the Examiner additionally for these reasons.

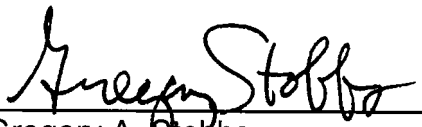
CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office

Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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